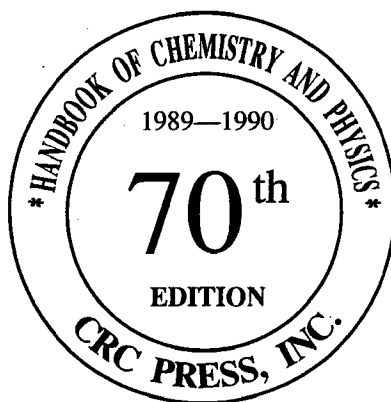


# CRC Handbook of Chemistry and Physics

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$$15. \frac{d^2}{dx^2}[f(u)]$$

$$16. \frac{d^n}{dx^n}[uv] =$$

$$\text{where } \binom{n}{r}$$

$$17. \frac{du}{dx} = \frac{1}{\frac{dx}{du}}$$

$$18. \frac{d}{dx}(\log_a u$$

$$19. \frac{d}{dx}(\log_e u$$

$$20. \frac{d}{dx}(a^u) =$$

$$21. \frac{d}{dx}(e^u) =$$

$$22. \frac{d}{dx}(u^u) =$$

$$23. \frac{d}{dx}(\sin u$$

$$24. \frac{d}{dx}(\cos u$$

$$25. \frac{d}{dx}(\tan u$$

$$26. \frac{d}{dx}(\cot u$$

$$27. \frac{d}{dx}(\sec u$$

$$28. \frac{d}{dx}(\csc u$$

$$29. \frac{d}{dx}(\operatorname{ver} u$$

$$30. \frac{d}{dx}(\operatorname{arc} u$$

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# CONVERSION FORMULAE FOR SOLUTIONS HAVING CONCENTRATIONS EXPRESSED IN VARIOUS WAYS

A = Weight per cent of solute  
 B = Molecular weight of solvent  
 E = Molecular weight of solute  
 F = Grams of solute per liter of solution  
 G = Molality  
 M = Molarity  
 N = Mole fraction  
 R = Density of solution grams per cc

Concentration of solute— SOUGHT	Concentration of solute—GIVEN				
	A	N	G	M	F
A	—	$\frac{100N \times E}{N \times E + (1 - N)B}$	$\frac{100G \times E}{1000 + G \times E}$	$\frac{M \times E}{10R}$	$\frac{F}{10R}$
N	$\frac{A}{E} + \frac{100 - A}{B}$	—	$\frac{B \times G}{B \times G + 1000}$	$\frac{B \times M}{M(B - E) + 1000R}$	$\frac{B \times F}{F(B - E) + 1000R \times E}$
G	$\frac{1000A}{E(100 - A)}$	$\frac{1000N}{B - N \times B}$	—	$\frac{1000M}{1000R - (M \times E)}$	$\frac{1000F}{E(1000R - F)}$
M	$\frac{10R \times A}{E}$	$\frac{1000R \times N}{N \times E + (1 - N)B}$	$\frac{1000R \times G}{1000 + E \times G}$	—	$\frac{F}{E}$
F	10AR	$\frac{1000R \times N \times E}{N \times E + (1 - N)B}$	$\frac{1000R \times G \times E}{1000 + G \times E}$	M × E	—

## ELECTROCHEMICAL SERIES

Petr Vanýsek

There are three tables for this Electrochemical Series. Each table lists standard reduction potentials,  $E^\circ$  values, at 298.15 K (25°C), and at a pressure of 101.325 kPa (1 atm.). Table 1 is an alphabetical listing of the elements according to the symbols for the elements. Thus, data for Silver (Ag) precedes those for Aluminum (Al). Table 2 lists only those reduction reactions which have  $E^\circ$  values positive to the potential of the Standard Hydrogen Electrode. In Table 2, the reactions are listed in the order of increasing positive potential and range from 0.000 V to +3.053 V. Table 3 lists only those reduction reactions which have  $E^\circ$  values negative to the potential of the Standard Hydrogen Electrode. In Table 3, reactions are listed in the order of increasing negative potential and range from -0.017 to -4.10 V.

Table 1  
ALPHABETICAL LISTING

Reaction	$E^\circ$ , V	Reaction	$E^\circ$ , V
$\text{Ag}^+ + e \rightleftharpoons \text{Ag}$	0.7996	$\text{Ag}_2\text{WO}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{WO}_4^{2-}$	0.4660
$\text{Ag}^{2+} + e \rightleftharpoons \text{Ag}^+$	1.980	$\text{Al}^{3+} + 3e \rightleftharpoons \text{Al}$	-1.662
$\text{Ag}(\text{ac}) + e \rightleftharpoons \text{Ag} + (\text{ac})^-$	0.643	$\text{H}_2\text{AlO}_3^- + \text{H}_2\text{O} + 3e \rightleftharpoons \text{Al} + 4\text{OH}^-$	-2.33
$\text{AgBr} + e \rightleftharpoons \text{Ag} + \text{Br}^-$	0.07133	$\text{AlF}_6^{3-} + 3e \rightleftharpoons \text{Al} + 6\text{F}^-$	-2.069
$\text{AgBrO}_3 + e \rightleftharpoons \text{Ag} + \text{BrO}_3^-$	0.546	$\text{As} + 3\text{H}^+ + 3e \rightleftharpoons \text{AsH}_3$	-0.608
$\text{Ag}_2\text{C}_2\text{O}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{C}_2\text{O}_4^{2-}$	0.4647	$\text{As}_2\text{O}_3 + 6\text{H}^+ + 6e \rightleftharpoons 2\text{As} + 3\text{H}_2\text{O}$	0.234
$\text{AgCl} + e \rightleftharpoons \text{Ag} + \text{Cl}^-$	0.22233	$\text{HASO}_2 + 3\text{H}^+ + 3e \rightleftharpoons \text{As} + 2\text{H}_2\text{O}$	0.248
$\text{AgCN} + e \rightleftharpoons \text{Ag} + \text{CN}^-$	-0.017	$\text{AsO}_2^- + 2\text{H}_2\text{O} + 3e \rightleftharpoons \text{As} + 4\text{OH}^-$	-0.68
$\text{Ag}_2\text{CO}_3 + 2e \rightleftharpoons 2\text{Ag} + \text{CO}_3^{2-}$	0.47	$\text{H}_3\text{AsO}_4 + 2\text{H}^+ + 2e \rightleftharpoons \text{HASO}_2 + 2\text{H}_2\text{O}$	0.560
$\text{Ag}_2\text{CrO}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{CrO}_4^{2-}$	0.4470	$\text{AsO}_4^{3-} + 2\text{H}_2\text{O} + 2e \rightleftharpoons \text{AsO}_2^- + 4\text{OH}^-$	-0.71
$\text{AgF} + e \rightleftharpoons \text{Ag} + \text{F}^-$	0.779	$\text{Au}^+ + e \rightleftharpoons \text{Au}$	1.692
$\text{Ag}_4[\text{Fe}(\text{CN})_6] + 4e \rightleftharpoons 4\text{Ag} + [\text{Fe}(\text{CN})_6]^{4-}$	0.1478	$\text{Au}^{3+} + 2e \rightleftharpoons \text{Au}^+$	1.401
$\text{AgI} + e \rightleftharpoons \text{Ag} + \text{I}^-$	-0.15224	$\text{Au}^{3+} + 3e \rightleftharpoons \text{Au}$	1.498
$\text{AgIO}_3 + e \rightleftharpoons \text{Ag} + \text{IO}_3^-$	0.354	$\text{AuBr}_2^- + e \rightleftharpoons \text{Au} + 2\text{Br}^-$	0.959
$\text{Ag}_2\text{MoO}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{MoO}_4^{2-}$	0.4573	$\text{AuBr}_4^- + 3e \rightleftharpoons \text{Au} + 4\text{Br}^-$	0.854
$\text{AgNO}_2 + e \rightleftharpoons \text{Ag} + \text{NO}_2^-$	0.564	$\text{AuCl}_4^- + 3e \rightleftharpoons \text{Au} + 4\text{Cl}^-$	1.002
$\text{Ag}_2\text{O} + \text{H}_2\text{O} + 2e \rightleftharpoons 2\text{Ag} + 2\text{OH}^-$	0.342	$\text{Au}(\text{OH})_3 + 3\text{H}^+ + 3e \rightleftharpoons \text{Au} + 3\text{H}_2\text{O}$	1.45
$\text{Ag}_2\text{O}_3 + \text{H}_2\text{O} + 2e \rightleftharpoons 2\text{AgO} + 2\text{OH}^-$	0.739	$\text{H}_2\text{BO}_3^- + 5\text{H}_2\text{O} + 8e \rightleftharpoons \text{BH}_4^- + 8\text{OH}^-$	-1.24
$2\text{AgO} + \text{H}_2\text{O} + 2e \rightleftharpoons \text{Ag}_2\text{O} + 2\text{OH}^-$	0.607	$\text{H}_2\text{BO}_3^- + \text{H}_2\text{O} + 3e \rightleftharpoons \text{B} + 4\text{OH}^-$	-1.79
$\text{AgOCN} + e \rightleftharpoons \text{Ag} + \text{OCN}^-$	0.41	$\text{H}_3\text{BO}_3 + 3\text{H}^+ + 3e \rightleftharpoons \text{B} + 3\text{H}_2\text{O}$	-0.8698
$\text{Ag}_2\text{S} + 2e \rightleftharpoons 2\text{Ag} + \text{S}^{2-}$	-0.691	$\text{Ba}^{2+} + 2e \rightleftharpoons \text{Ba}$	-2.912
$\text{Ag}_2\text{S} + 2\text{H}^+ + 2e \rightleftharpoons 2\text{Ag} + \text{H}_2\text{S}$	-0.0366	$\text{Ba}^{2+} + 2e \rightleftharpoons \text{Ba}(\text{Hg})$	-1.570
$\text{AgSCN} + e \rightleftharpoons \text{Ag} + \text{SCN}^-$	0.08951	$\text{Ba}(\text{OH})_2 + 2e \rightleftharpoons \text{Ba} + 2\text{OH}^-$	-2.99
$\text{Ag}_2\text{SeO}_3 + 2e \rightleftharpoons 2\text{Ag} + \text{SeO}_4^{2-}$	0.3629	$\text{Be}^{2+} + 2e \rightleftharpoons \text{Be}$	-1.847
$\text{Ag}_2\text{SO}_4 + 2e \rightleftharpoons 2\text{Ag} + \text{SO}_4^{2-}$	0.654	$\text{Be}_2\text{O}_3^{2-} + 3\text{H}_2\text{O} + 4e \rightleftharpoons 2\text{Be} + 6\text{OH}^-$	-2.63

Table 1 (continued)  
ALPHABETICAL LISTING

Reaction	E°, V	Reaction	E°, V	
$\text{PbSO}_4 + 2 e \rightleftharpoons \text{Pb(Hg)} + \text{SO}_4^{2-}$	-0.3505	$\text{Se} + 2 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{Se(aq)}$	-0.399	$\text{WO}_2 +$
$\text{Pd}^{2+} + 2 e \rightleftharpoons \text{Pd}$	0.951	$\text{H}_2\text{SeO}_3 + 4 \text{H}^+ + 4 e \rightleftharpoons \text{Se} + 3 \text{H}_2\text{O}$	-0.74	$\text{WO}_3 +$
$[\text{PdCl}_4]^{2-} + 2 e \rightleftharpoons \text{Pd} + 4 \text{Cl}^-$	0.591	$\text{SeO}_3^{2-} + 3 \text{H}_2\text{O} + 4 e \rightleftharpoons \text{Se} + 6 \text{OH}^-$	-0.366	$2 \text{WO}_3$
$[\text{PdCl}_4]^{2-} + 2 e \rightleftharpoons [\text{PdCl}_4]^{2-} + 2 \text{Cl}^-$	1.288	$\text{SeO}_3^{2-} + 4 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{SeO}_3 + \text{H}_2\text{O}$	1.151	$\text{Y}^{3+} +$
$\text{Pd(OH)}_2 + 2 e \rightleftharpoons \text{Pd} + 2 \text{OH}^-$	0.07	$\text{SeO}_3^{2-} + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{SeO}_3^{2-} + 2 \text{OH}^-$	0.05	$\text{Zn}^{2+} +$
$\text{Pt}^{2+} + 2 e \rightleftharpoons \text{Pt}$	1.118	$\text{SiF}_6^{2-} + 4 e \rightleftharpoons \text{Si} + 6 \text{F}^-$	-1.24	$\text{Zn}^{2+} +$
$[\text{PtCl}_4]^{2-} + 2 e \rightleftharpoons \text{Pt} + 4 \text{Cl}^-$	0.755	$\text{SiO}_2 \text{ (quartz)} + 4 \text{H}^+ + 4 e \rightleftharpoons \text{Si} + 2 \text{H}_2\text{O}$	0.857	
$[\text{PtCl}_4]^{2-} + 2 e \rightleftharpoons [\text{PtCl}_4]^{2-} + 2 \text{Cl}^-$	0.68	$\text{SiO}_3^{2-} + 3 \text{H}_2\text{O} + 4 e \rightleftharpoons \text{Si} + 6 \text{OH}^-$	-1.697	
$\text{Pt(OH)}_2 + 2 e \rightleftharpoons \text{Pt} + 2 \text{OH}^-$	0.14	$\text{Sn}^{2+} + 2 e \rightleftharpoons \text{Sn}$	-0.1375	REI
$\text{Pu}^{3+} + 3 e \rightleftharpoons \text{Pu}$	-2.031	$\text{Sn}^{4+} + 2 e \rightleftharpoons \text{Sn}^{2+}$	0.151	
$\text{Pu}^{4+} + e \rightleftharpoons \text{Pu}^{3+}$	1.006	$\text{HSnO}_2^- + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{Sn} + 3 \text{OH}^-$	-0.909	
$\text{Pu}^{5+} + e \rightleftharpoons \text{Pu}^{4+}$	1.099	$\text{Sn(OH)}_6^{2-} + 2 e \rightleftharpoons \text{HSnO}_2^- + 3 \text{OH}^- + \text{H}_2\text{O}$	-0.93	$2 \text{H}^+ +$
$\text{PuO}_2(\text{OH})_2 + 2 \text{H}^+ + 2 e \rightleftharpoons \text{Pu(OH)}_4$	1.325	$\text{Sr}^+ + e \rightleftharpoons \text{Sr}$	-4.10	$\text{CuI}_2 +$
$\text{PuO}_2(\text{OH})_2 + \text{H}^+ + e \rightleftharpoons \text{PuO}_2\text{OH} + \text{H}_2\text{O}$	1.062	$\text{Sr}^{2+} + 2 e \rightleftharpoons \text{Sr}$	-2.89	$\text{Ge}^{4+} +$
$\text{Rb}^+ + e \rightleftharpoons \text{Rb}$	-2.98	$\text{Sr}^{2+} + 2 e \rightleftharpoons \text{Sr(Hg)}$	-1.793	$\text{NO}_3^- +$
$\text{Re}^{3+} + 3 e \rightleftharpoons \text{Re}$	0.300	$\text{Sr(OH)}_2 + 2 e \rightleftharpoons \text{Sr} + 2 \text{OH}^-$	-2.88	$\text{Ti}_2\text{O}_3 +$
$\text{ReO}_4^- + 4 \text{H}^+ + 3 e \rightleftharpoons \text{ReO}_2 + 2 \text{H}_2\text{O}$	0.510	$\text{Ta}_2\text{O}_5 + 10 \text{H}^+ + 10 e \rightleftharpoons 2 \text{Ta} + 5 \text{H}_2\text{O}$	-0.750	$\text{SeO}_4^{2-} +$
$\text{ReO}_2 + 4 \text{H}^+ + 4 e \rightleftharpoons \text{Re} + 2 \text{H}_2\text{O}$	0.2513	$\text{Tc}^{2+} + 2 e \rightleftharpoons \text{Tc}$	0.400	$\text{UO}_2^{2+} +$
$\text{ReO}_4^- + 2 \text{H}^+ + e \rightleftharpoons \text{ReO}_3 + \text{H}_2\text{O}$	0.768	$\text{TcO}_4^- + 4 \text{H}^+ + 3 e \rightleftharpoons \text{TcO}_2 + 2 \text{H}_2\text{O}$	0.782	$\text{Pd(OH)}_2$
$\text{ReO}_4^- + 4 \text{H}_2\text{O} + 7 e \rightleftharpoons \text{Re} + 8 \text{OH}^-$	-0.584	$\text{Te} + 2 e \rightleftharpoons \text{Te}^{2-}$	-1.143	$\text{AgBr} +$
$\text{ReO}_4^- + 8 \text{H}^+ + 7 e \rightleftharpoons \text{Re} + 4 \text{H}_2\text{O}$	0.368	$\text{Te} + 2 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{Te}$	-0.793	$\text{S}_4\text{O}_6^{2-} +$
$\text{Rh}^+ + e \rightleftharpoons \text{Rh}$	0.600	$\text{Te}^{4+} + 4 e \rightleftharpoons \text{Te}$	0.568	$\text{AgSCN}$
$\text{Rh}^{2+} + 2 e \rightleftharpoons \text{Rh}$	0.600	$\text{TeO}_2 + 4 \text{H}^+ + 4 e \rightleftharpoons \text{Te} + 2 \text{H}_2\text{O}$	0.593	$\text{N}_2 + 2$
$\text{Rh}^{3+} + 3 e \rightleftharpoons \text{Rh}$	0.758	$\text{TeO}_3^{2-} + 3 \text{H}_2\text{O} + 4 e \rightleftharpoons \text{Te} + 6 \text{OH}^-$	-0.57	$\text{HgO} +$
$[\text{RhCl}_6]^{3-} + 3 e \rightleftharpoons \text{Rh} + 6 \text{Cl}^-$	0.431	$\text{TeO}_4^{2-} + 8 \text{H}^+ + 7 e \rightleftharpoons \text{Te} + 4 \text{H}_2\text{O}$	0.472	$\text{Ir}_2\text{O}_3 +$
$\text{Ru}^{2+} + 2 e \rightleftharpoons \text{Ru}$	0.455	$\text{H}_6\text{TeO}_6 + 2 \text{H}^+ + 2 e \rightleftharpoons \text{TeO}_2 + 4 \text{H}_2\text{O}$	1.02	$2 \text{NO} +$
$\text{Ru}^{3+} + e \rightleftharpoons \text{Ru}^{2+}$	0.2487	$\text{Th}^{4+} + 4 e \rightleftharpoons \text{Th}$	-1.899	$[\text{Co(NH}_3$
$\text{RuO}_2 + 4 \text{H}^+ + 2 e \rightleftharpoons \text{Ru}^{2+} + 2 \text{H}_2\text{O}$	1.120	$\text{ThO}_2 + 4 \text{H}^+ + 4 e \rightleftharpoons \text{Th} + 2 \text{H}_2\text{O}$	-1.789	$\text{Hg}_2\text{O} +$
$\text{RuO}_4^- + e \rightleftharpoons \text{RuO}_4^{2-}$	0.59	$\text{Th(OH)}_4 + 4 e \rightleftharpoons \text{Th} + 4 \text{OH}^-$	-2.48	$\text{Ge}^{4+} +$
$\text{RuO}_4 + e \rightleftharpoons \text{RuO}_4^-$	1.00	$\text{Ti}^{2+} + 2 e \rightleftharpoons \text{Ti}$	-1.630	$\text{Hg}_2\text{Br}_2$
$\text{S} + 2 e \rightleftharpoons \text{S}^{2-}$	-0.47627	$\text{Ti}^{3+} + e \rightleftharpoons \text{Ti}^{2+}$	-0.368	$\text{Pt(OH)}_2$
$\text{S} + 2 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{S(aq)}$	0.142	$\text{TiO}_2 + 4 \text{H}^+ + 2 e \rightleftharpoons \text{Ti}^{2+} + 2 \text{H}_2\text{O}$	-0.502	$\text{S} + 2 \text{H}$
$\text{S} + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{HS}^- + \text{OH}^-$	-0.478	$\text{TiOH}^{3+} + \text{H}^+ + e \rightleftharpoons \text{Ti}^{3+} + \text{H}_2\text{O}$	-0.055	$\text{Np}^{4+} +$
$2 \text{S} + 2 e \rightleftharpoons \text{S}_2^{2-}$	-0.42836	$\text{Ti}^+ + e \rightleftharpoons \text{Ti}$	-0.336	$\text{Ag}_4[\text{Fe(C}$
$\text{S}_2\text{O}_6^{2-} + 4 \text{H}^+ + 2 e \rightleftharpoons 2 \text{H}_2\text{SO}_3$	0.564	$\text{Ti}^+ + e \rightleftharpoons \text{Ti(Hg)}$	-0.3338	$\text{IO}_3^- + 2$
$\text{S}_2\text{O}_8^{2-} + 2 e \rightleftharpoons 2 \text{SO}_4^{2-}$	2.010	$\text{Ti}^{3+} + 2 e \rightleftharpoons \text{Ti}^+$	1.252	$\text{Mn(OH)}$
$\text{S}_2\text{O}_8^{2-} + 2 \text{H}^+ + 2 e \rightleftharpoons 2 \text{HSO}_4^-$	2.123	$\text{TlBr} + e \rightleftharpoons \text{Tl} + \text{Br}^-$	-0.658	$2 \text{NO}_2^- +$
$\text{S}_4\text{O}_6^{2-} + 2 e \rightleftharpoons 2 \text{S}_2\text{O}_3^{2-}$	0.08	$\text{TlCl} + e \rightleftharpoons \text{Tl} + \text{Cl}^-$	-0.5568	$\text{Sn}^{4+} +$
$2 \text{H}_2\text{SO}_3 + \text{H}^+ + 2 e \rightleftharpoons \text{HS}_2\text{O}_4^- + 2 \text{H}_2\text{O}$	-0.056	$\text{TlI} + e \rightleftharpoons \text{Tl} + \text{I}^-$	-0.752	$\text{Sb}_2\text{O}_3 +$
$\text{H}_2\text{SO}_3 + 4 \text{H}^+ + 4 e \rightleftharpoons \text{S} + 3 \text{H}_2\text{O}$	0.449	$\text{Ti}_2\text{O}_3 + 3 \text{H}_2\text{O} + 4 e \rightleftharpoons 2 \text{Ti}^+ + 6 \text{OH}^-$	0.02	$\text{Cu}^{2+} +$
$2 \text{SO}_3^{2-} + 2 \text{H}_2\text{O} + 2 e \rightleftharpoons \text{S}_2\text{O}_4^{2-} + 4 \text{OH}^-$	-1.12	$\text{TlOH} + e \rightleftharpoons \text{Tl} + \text{OH}^-$	-0.34	$\text{BiOCl} +$
$2 \text{SO}_3^{2-} + 3 \text{H}_2\text{O} + 4 e \rightleftharpoons \text{S}_2\text{O}_3^{2-} + 6 \text{OH}^-$	-0.571	$\text{Ti(OH)}_3 + 2 e \rightleftharpoons \text{TlOH} + 2 \text{OH}^-$	-0.05	$\text{Bi(Cl)}_4^-$
$\text{SO}_4^{2-} + 4 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{SO}_3 + \text{H}_2\text{O}$	0.172	$\text{Ti}_2\text{SO}_4 + 2 e \rightleftharpoons \text{Ti} + \text{SO}_4^{2-}$	-0.4360	$\text{Co(OH)}_3$
$2 \text{SO}_4^{2-} + 4 \text{H}^+ + 2 e \rightleftharpoons \text{S}_2\text{O}_8^{2-} + \text{H}_2\text{O}$	-0.22	$\text{U}^{3+} + 3 e \rightleftharpoons \text{U}$	-1.798	$\text{SO}_4^{2-} +$
$\text{SO}_4^{2-} + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{SO}_3^{2-} + 2 \text{OH}^-$	-0.93	$\text{U}^{4+} + e \rightleftharpoons \text{U}^{3+}$	-0.607	$\text{SbO}^+ +$
$\text{Sb} + 3 \text{H}^+ + 3 e \rightleftharpoons \text{SbH}_3$	-0.510	$\text{UO}_2^{2+} + 4 \text{H}^+ + e \rightleftharpoons \text{U}^{4+} + 2 \text{H}_2\text{O}$	0.612	$\text{AgCl} +$
$\text{Sb}_2\text{O}_3 + 6 \text{H}^+ + 6 e \rightleftharpoons 2 \text{Sb} + 3 \text{H}_2\text{O}$	0.152	$\text{UO}_2^{2+} + e \rightleftharpoons \text{UO}^+$	0.062	$\text{As}_2\text{O}_3 +$
$\text{Sb}_2\text{O}_3 \text{ (senarmontite)} + 4 \text{H}^+ + 4 e \rightleftharpoons \text{Sb}_2\text{O}_3 + 2 \text{H}_2\text{O}$	0.671	$\text{UO}_2^{2+} + 4 \text{H}^+ + 2 e \rightleftharpoons \text{U}^{4+} + 2 \text{H}_2\text{O}$	0.327	$\text{Calomel}$
$\text{Sb}_2\text{O}_3 \text{ (valentinite)} + 4 \text{H}^+ + 4 e \rightleftharpoons \text{Sb}_2\text{O}_3 + 2 \text{H}_2\text{O}$	0.649	$\text{UO}_2^{2+} + 4 \text{H}^+ + 6 e \rightleftharpoons \text{U} + 2 \text{H}_2\text{O}$	-1.444	$\text{Ge}^{2+} +$
$\text{Sb}_2\text{O}_3 + 6 \text{H}^+ + 4 e \rightleftharpoons 2 \text{SbO}^+ + 3 \text{H}_2\text{O}$	0.581	$\text{V}^{2+} + 2 e \rightleftharpoons \text{V}$	-1.175	$\text{Calomel}$
$\text{SbO}^+ + 2 \text{H}^+ + 3 e \rightleftharpoons \text{Sb} + 2 \text{H}_2\text{O}$	0.212	$\text{V}^{3+} + e \rightleftharpoons \text{V}^{2+}$	-0.255	$\text{PbO}_2 +$
$\text{SbO}_2^- + 2 \text{H}_2\text{O} + 3 e \rightleftharpoons \text{Sb} + 4 \text{OH}^-$	-0.66	$\text{VO}^{2+} + 2 \text{H}^+ + e \rightleftharpoons \text{V}^{3+} + \text{H}_2\text{O}$	0.337	$\text{HAsO}_2$
$\text{SbO}_3^- + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{SbO}_2^- + 2 \text{OH}^-$	-0.59	$\text{VO}_2^+ + 2 \text{H}^+ + e \rightleftharpoons \text{VO}^{2+} + \text{H}_2\text{O}$	0.991	$\text{Ru}^{3+} +$
$\text{Sc}^{3+} + 3 e \rightleftharpoons \text{Sc}$	-2.077	$\text{V(OH)}_4^+ + 2 \text{H}^+ + e \rightleftharpoons \text{VO}^{2+} + 3 \text{H}_2\text{O}$	1.00	$\text{ReO}_2 +$
$\text{Se} + 2 e \rightleftharpoons \text{Se}^{2-}$	-0.924	$\text{V(OH)}_4^+ + 4 \text{H}^+ + 5 e \rightleftharpoons \text{V} + 4 \text{H}_2\text{O}$	-0.254	$\text{IO}_3^- + 3$
		$\text{W}_2\text{O}_3 + 2 \text{H}^+ + 2 e \rightleftharpoons 2 \text{WO}_2 + \text{H}_2\text{O}$	-0.031	$\text{Hg}_2\text{Cl}_2$
				$\text{Calomel}$
				$\text{Calomel}$